

REMARKS/ARGUMENTS

This application has been reconsidered carefully in light of the Office Action dated as mailed on 17 November 2003. A careful reconsideration of the application by the Examiner in light of the foregoing amendments and the following remarks is respectfully requested.

5 This response is timely filed as it is filed within the three (3) month shortened statutory period for response to the outstanding Office Action.

This response is also accompanied with a check and/or authorization to charge deposit account for any additional claim fee due as a result of this Amendment because the number of independent claims exceeds the number of independent claims
10 for which fees have previously been paid, the total number of claims exceeds the total number of claims for which fees have previously been paid, or both. Moreover, if it is determined that any additional claim fee is properly due as a result of this communication, the Commissioner is hereby authorized to charge payment of such fees or credit any overpayment, associated with this communication, to Deposit
15 Account 19-3550.

Amendment to the Claims

By the above,

1. Independent claims 25 and 47 have been rewritten to improve their form and to make more clearly define the invention which Applicant regards as
5 his invention, and

2. Claims 67 and 68 have been added to more fully and completely claim the disclosed subject matter.

More particularly, claim 25 has been rewritten to make clear that the mixture being heated in the inflator device to form the fuel material in situ, in addition to being free of free water, consists essentially of a water-supplying compound and a water-reactive fuel precursor. Such rewritten claim is consistent with the description contained in the application such as in the description relative to the embodiment shown in FIG. 1.

Claim 47 has been rewritten to require that the formed fuel material be
15 released into a chamber containing a quantity of compressed gas, the compressed gas including a quantity of oxidant. Such rewritten claim finds support and is consistent with the specification, see page 20, line 20 through page 21, line 8, for example.

Newly added claims 67 and 68 additionally require that, in an at rest condition, the water-supplying compound and the water-reactive fuel precursor are

stored within a first chamber, and that the water-supplying compound is stored segregated from the water-reactive fuel precursor.

Claims 67 and 68 generally parallel previously presented claim 40 but with claims 67 and 68 being dependent on independent claims 47 and 57, respectively. Such claimed requirements find support throughout the originally filed application, such as at page 13, lines 12-20, for example.

Claims 25-28, 30, 31, 36-42, 44-51 and 53-68 remain in the application, with claims 27, 28, 44-46, 48-51, 55 and 56 having been previously withdrawn from consideration, claims 58-60 and 63-66 being newly withdrawn from consideration and wherein, as submitted below, reconsideration of the withdrawal of at least previously presented claim 59 and previously newly added claim 64-66 is requested and believed to be in order.

Election/Restrictions

The Action sets forth that the earlier made restriction has been made final.

In response to that earlier restriction requirement, the invention of Group III (i.e., drawn to a method of inflating a restraint) was elected without traverse.

The making of that restriction requirement final is acknowledged.

The Action further sets forth that claims 27, 28, 44-46, 48-51, 55, 56, 58-60 and 63-66 have been “withdrawn from consideration by the Examiner as being drawn to embodiments non-elected with traverse.”

Reconsideration of the application of the election of species requirement is requested. In particular, reconsideration of the withdrawal from consideration of previously presented claim 59 and previously newly added claim 64-66 is respectfully requested.

In response to the earlier election of species requirement, the elected method employing compositions which include ammonium nitrate as a water-supplying compound and potassium t-butyl carbonate as a water-reactive fuel precursor were elected.

It is respectfully submitted that each of previously presented claim 59 and previously newly added claim 64-66 reads on the so elected species. More specifically:

1. Claims 59 and 65 each require the water-reactive fuel precursor comprises an alkali metal. Potassium t-butyl carbonate was previously elected. Potassium t-butyl carbonate contains potassium. Potassium is an alkali metal. Thus, claims 59 and 65 each respectfully believed to read on the elected invention.

2. Claims 64 and 66 each require the water-reactive fuel precursor comprises at least one first component selected from the group of metals and organometallic compounds and at least one second component selected from the group of carbonates and bicarbonates. Potassium t-butyl carbonate was previously elected. Potassium is a metal and t-butyl carbonate is a carbonate. Thus, claims 64 and 66 each respectfully believed to read on the elected invention.

In addition, relative to the statement in the Action that newly added claims 64-67 "have not been searched and examined because the search has not been broadened beyond use of ammonium nitrate as a water supplying compound", the following is noted:

1. The previous response added claims 64-66. Claim 67 has only now been added with this response.
2. Previously added claims 64-66 are each directed to the water-reactive fuel precursor, NOT the "water-supplying compound".
3. As previously added claims 64-66 are each respectfully believed to read on the elected invention, the examination and consideration of these claims is requested.

Allowable Subject Matter

As a preliminary matter, the undersigned wishes to thank Examiner Hardee for the allowance of claims 30 and 53 and the identification that claim 61, if rewritten in independent form including all of the limitation of the base claim and any intervening claims, would be allowable.

As claim 61 is dependent on claim 57 and as claim 57 is, as discussed in greater detail, believed to be patentable over the prior art of record, the placing of claim 61 in independent form is deferred until at least after a reconsideration by Examiner of the patentability of claim 57, at least for the reasons discussed in greater detail below.

It is additionally noted that though the Office Action Summary sheet that was included with the Action includes claim 40 with the claims being rejected, the Action does NOT include claim 40 in any of the rejections discussed in the Detailed Action. Claim 40 is directed to the method of claim 37 wherein, in an at rest condition, the water-supplying compound is stored segregated from the water-reactive fuel precursor within the first chamber. As such segregation is not believed to be shown in the cited prior art and as claim 40 has not been rejected on any prior art basis, claim 40 is believed to be patentable over the prior art of record and notification to that effect is solicited.

Claim Rejections - 35 U.S.C. §102(a)

The withdrawal of the rejection of certain of the claims as anticipated by WO 00/29261 is noted.

Claim Rejections - 35 U.S.C. §103

5 Before addressing the various rejections under 35 U.S.C. §103, a brief discussion of requirements for such rejections may prove helpful and is believed in order.

The MPEP provides:

10 After indicating that the rejection is under 35 U.S.C. 103, the Examiner should set forth in the Office action:

(A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,

15 (B) the difference or differences in the claim over the applied reference(s),

(C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and

20 (D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification. (MPEP 706.02(j) Contents of a 35 U.S.C. 103 Rejection)

In view thereof, it is respectfully submitted that the setting forth of "the difference or differences in the claim over the applied reference(s)" requires more

than a simple statement that reference does not disclose the claimed invention “with sufficient specificity to constitute anticipation.” As set forth in MPEP 706.02(j):

1. “The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done.” and
2. “It is important for an examiner to properly communicate the basis for a rejection so that the issues can be identified early and the applicant can be given fair opportunity to reply.”

In view of the above, the cooperation of the Examiner in providing a proper identification of difference or differences in the claims over the applied reference(s) in future, if any, rejection under 35 U.S.C. 103 would be appreciated.

1. Claims 25, 26, 31, 36-38, 42, 47 and 54 were rejected under 35 U.S.C. §103(a) as being unpatentable over WO 00/29261.

In so rejecting these claims, the Action, after acknowledging that the “reference does not disclose a water-free device with sufficient specificity to constitute an anticipation” asserts,

It would have been obvious at the time the invention was made to construct an airbag inflator which does not utilize water, as the reference teaches that water is a preferred, but not a necessary oxidant, as noted above.

Such rejections are respectfully traversed and/or are believed to be overcome by the above-rewritten claims.

First, WO 00/29261 teaches that water is a preferred primary oxidant for use in the practice of the invention thereof. WO 00/29261 does not specifically identify possible alternative primary oxidants. Clearly, WO 00/29261 does not teach that water is not to be present. The very teaching in WO 00/29261 that water is a preferred primary oxidant, teaches against practice of the claimed invention.

Further, claim 25 has been rewritten to require that the mixture heated within the inflator device, in addition to being free of free water, consists essentially of a water-supplying compound and a water-reactive fuel precursor. Such a claimed invention is clearly neither shown nor suggested by WO 00/29261. As recognized in the Action, WO 00/29261 discloses an inflation method involving the combustion of a carborane fuel and a primary oxidant. In accordance with one embodiment, WO 00/29261 further discloses ammonium nitrate as an oxidant source material. WO 00/29261 specifically discloses WO 00/29261 further discloses that in certain preferred embodiments, “the carborane fuel and primary oxidant are desirably stored in intimate contact with an oxidant source material.” (See page 21, lines 27-30, for example.) Nowhere does WO 00/29261 show or suggest heating a mixture free of free water and consisting essentially of a water-supplying compound and a

water-reactive fuel precursor to form the fuel material in situ within an inflator device, as claimed.

In view of the above, claim 25 is believed to be patentable over WO 00/29261 and notification to that effect is solicited.

5 Claims 26, 31, 36-38 and 42 are dependent on claim 25. As claim 25 is believed patentable over WO 00/29261, so to these claims dependent on claim 25 are also believed to be patentable over WO 00/29261 and notification to that effect is solicited.

Further, as submitted in the preceding amendment, claim 42 is dependent on claim 41. As claim 41, which requires that the first chamber be at least in part defined by a perforated housing, has not been rejected based on WO 00/29261, neither claim 42 which depends on claim 41 is believed to be properly rejected based on WO 00/29261 and notification to that effect is solicited.

10 Claim 47 has been rewritten to require that the fuel material, formed by contacting a water-reactive fuel precursor contained within the inflator device with at least a portion of formed water formed in the inflator device, is released into a chamber containing a quantity of compressed gas, including a quantity of oxidant. Such a method is neither shown nor suggested by WO 00/29261. In view thereof, the

withdrawal of this stated basis of rejection as applied to claim 47 and the claims dependent thereon (including claim 54) is also respectfully requested.

2. Claims 25, 26, 31, 36-39, 41, 42, 57 and 62 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,224,099 B1 to Nielson et al. (hereinafter "Nielson").

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In so rejecting these claims, the Action states:

The reference discloses hybrid airbag inflator systems and igniter compositions for same. The burning of a small amount of propellant propels a piston into a container of *inert* gas which ruptures. The enclosed gas mixes with and is heated by gases generated by the burning of the propellant (col. 5, lines 15-35). Suitable gas generants comprise an oxidizer, such as ammonium nitrate (col. 6, lines 39+). The chamber must be perforated in order to allow travel of the piston and to allow gas to escape (col. 8, lines 11-13). End piece 4 holds squib 5, and may be considered a liner for the housing (col. 8, lines 15-16.) This reference differs from the claimed subject matter in that it does not disclose a method which reads on applicant's claims with sufficient specificity to constitute anticipation.

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Such rejections are respectfully traversed and/or are believed to be overcome by the above-rewritten claims.

As recognized in the Action, Nielson discloses that suitable gas generants may further comprise a binder such as polypropylene carbonate. The pending claims require a water-reactive fuel precursor. As previously stated and as will be appreciated by those skilled in the art, polymeric carbonates such as the

**polypropylene carbonate disclosed in Nielson are not water-reactive let alone
water-reactive fuel precursor materials as required by the pending claims.**

While the Action asserts that it is the Examiner's position that "the same materials will react to give the same products, whether in applicant's airbag or the prior art airbag", such assertion fails to recognize that Nielson in disclosing polypropylene carbonate does not disclose "**the same materials.**"

Further, claim 25 has been rewritten to require that the mixture heated within the inflator device, in addition to being free of free water, consists essentially of a water-supplying compound and a water-reactive fuel precursor. Such a claimed invention is clearly neither shown nor suggested by Nielson. As disclosed in Nielson, suitable gas generant used in the practice thereof include a gas generant fuel and an appropriate oxidizing agent. (See column 6, lines 30-32, for example.) As further disclosed in Nielson, in addition to such fuel and oxidizing agent, suitable gas generant compositions may also contain at least one binder. (See column 7, lines 24-25, for example.) Thus, Nielson specifically teaches that gas generant compositions which include such a binder includes the binder in addition to a gas generant fuel and an appropriate oxidizing agent. Nowhere does Nielson show or suggest heating a mixture free of free water and consisting essentially of a water-supplying compound

and a water-reactive fuel precursor to form the fuel material in situ within an inflator device, as claimed.

In view of the above, claim 25 and the claims dependent thereon (including claims 26, 31, 36-39, 41, 42) are believed to be patentable over Nielson and notification to that effect is solicited.

5 In addition, at least certain of these dependent claims include additional limitations which are believed to further patentably distinguish the claimed invention from Nielson.

For example, claim 26 includes the step of “contacting the formed fuel material with a quantity of compressed gas, the compressed gas including a quantity of oxidant.” As stated in the Action, Nielson employs a container of inert gas. Such an inert gas does NOT include a quantity of oxidant as required by claim 26.

10 Claim 42 requires a liner within the perforated housing maintaining the first chamber contents in discharge proximity with the initiator. As previously submitted with regard to Nielson (and not WO 00/29261 as alleged in the Action), the end piece 4 of Nielson is just that, an end piece. Claim 42 requires “a liner within the perforated housing”. The end piece 4 of Nielson is clearly not a liner within a perforated housing, as required by claim 42. While the Action alleges (without any identification of support for the allegation) that “any structure which comprises a

portion of the chamber can be broadly construed as lining the chamber”, Claim 42 requires “a liner within the perforated housing maintaining the first chamber contents in discharge proximity with the initiator.” A portion of the chamber, by definition, is not within the chamber.

5 Further, the Action incorrectly alleges that claim language regarding “discharge proximity” does not further define the feature. As shown in Nielson, the end piece 4 is fitted with an igniter squib 5. The Nielson end piece 4 does NOT maintain the chamber contents in discharge proximity with an initiator, as required by claim 42. The very fact that the Nielson end piece 4 does not satisfy the claim requirement to maintain the chamber contents in discharge proximity with the initiator
10 illustrates that this recitation further patentably defines the feature.

15 Claim 57 requires the water-reactive fuel precursor comprises: a) at least one metal element-containing material selected from the group consisting of hydrides, carbides, alkoxides and combinations thereof and b) a carbonate-containing material. Such a water-reactive fuel precursor is not believed to be shown or suggested by Nielson. In view of the above, claim 57 and the claims dependent thereon (including claim 62) are believed to be patentable over Nielson and notification to that effect is solicited.

3. Claims 25, 26, 31 and 36-39 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,486,248 to Taylor et al. (hereinafter "Taylor").

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In so rejecting these claims, the Action explicitly states:

This reference differs from the claimed subject matter in that it does not disclose a method which reads on applicant's claims with sufficient specificity to constitute anticipation.

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It would have been obvious at the time the invention was made to use an airbag in the claimed method, because this reference teaches that all of the components recited by applicants are suitable for inclusion in a hybrid inflator. The person of ordinary skill in the surfactant art would expect the recited compositions to have properties similar to those compositions which are exemplified, absent a showing to the contrary. Regarding the chemistry recited in the method steps, the examiner takes the position that the same materials will react to give the same products, whether in applicant's airbag or the prior art airbag.

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Such rejections are respectfully traversed and/or are believed to be overcome by the above-rewritten claims.

Independent claim 25 is directed to an improvement in a method for inflating an inflatable safety device via an inflator device wherein a fuel material reacts to form gas generation reaction products, the improvement comprising: heating a mixture free of free water and consisting essentially of a water-supplying compound

and a water-reactive fuel precursor to form the fuel material *in situ*, within the inflator device.

Such *in situ* formation of such a fuel material is nowhere shown or suggested by Taylor.

Moreover, Taylor discloses that the gas generants thereof include selected thermosetting resins (See Taylor, column 4, lines 9-11, for example) in addition to other contents such as oxidizers and coolants. Clearly, Taylor does not show or suggest heating a mixture free of free water and consisting essentially of a water-supplying compound and a water-reactive fuel precursor to form a fuel material *in situ*, within an inflator device, as required by claim 25.

In view of the above, claim 25 and the claims dependent thereon(including claims 26, 31 and 36-39) are believed to be patentable over Taylor and notification to that effect is solicited.

In addition, at least certain of these dependent claims include additional limitations which are believed to further patentably distinguish the claimed invention from Taylor.

For example, claim 26 includes the step of “contacting the formed fuel material with a quantity of compressed gas, the compressed gas including a quantity

of oxidant.” Nowhere does Taylor show or suggest an inflator having a “compressed gas including a quantity of oxidant”, as required by claim 26.

Withdrawn Claims

In view of the above, each of previously rejected independent claims 25, 5 47 and 57 is believed to be in condition for allowance. As such, the claims that depend on a respective one of such independent claims and which dependent claims had previously been withdrawn from consideration are now believed to be herein entitled to consideration. As the respective underlying independent claims are believed to be in patentable over the prior art of record, so to, these claims dependent thereon, are also believed to be patentable over the prior art of record and notification 10 to that effect is solicited.

Newly Added Claims

Claims 67 and 68 have been added.

As submitted above, claims 67 and 68 generally parallel previously 15 presented claim 40 but with claims 67 and 68 dependent on independent claims 47 and 57, respectively.

As the Action has not identified any basis of rejection applicable to claim 40, claim 40 is believed to be in condition for allowance. Further, claims 67

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and 68 are similarly also believed to be in condition for allowance these claims and notification to that effect is solicited.

Conclusion

In view of the above, all pending claims are believed to be in condition
for allowance and notification to that effect is solicited. However, should the
Examiner detect any remaining issue or have any question, the Examiner is kindly
requested to contact the undersigned, preferably by telephone, in an effort to expedite
examination of the application.

Respectfully submitted,



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